The Capitol Hill Monitor

Volume 19 Issue 1 (2016) January 2016

CHM GET-TOGETHER
Sun. Jan. 31, 2016 !!!

Ledo's Restaurant in College Park has reserved space for us at 2 p.m. this Sunday, January 31, 2016.

Ledo's will once again do a group check. **So please bring along extra $1 bills with you and figure on 6 percent tax plus 20 percent tip** (so Alan doesn't get stuck with the bill : -)

Parking is free on Sundays.

The restaurant is at 4509 Knox Rd near the Univ. of Maryland off Route 1.

THE ORIGINAL

Ledo Restaurant

since 1955

EVERYBODY'S WELCOME TO COME.

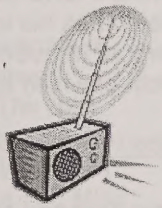
In the event of significant snow, e-mail or call Alan, (202) 439-1618.

JOIN THE ZELLO SMARTPHONE D.C. AREA NOTIFICATION NET!

Zello is a push-to-talk (PTT)-style application for computers and mobile devices, much like the old Nextel Direct Connect. The Zello app allows groups of people or individuals to use a walkie-talkie-style communication method without having to deal with complications such as establishing conference calls. Inspired by the Scan-DC e-mail group, Kenny Lorber created the "National Capital Region Public Safety" group on Zello a couple years ago, but it is being re-launched in 2016!

We hope this group will allow urgent information and emergency events to be shared with interested parties in real time. The channel is running 24/7 but may not be continuously moderated. If a person is cleared to transmit, they may do so at any time. Those seeking to join must be approved to transmit by an admin or moderator but anyone with the password may listen. The password for the group is "scandc2016" without the quotation marks.

Keeping in mind that many leave their phones on at all times, we should be conservative in the types of incidents we choose to broadcast to minimize interruptions. Types of events we'd like to have transmitted and shared over the channel include: fire/rescue incidents that lead to extended operations, damage or cause significant travel or living disruption; significant police incidents including critical shootings or acts of violence, homicides, felony manhunts, terror incidents, barricades or anything that impacts a major highway; missing persons (amber alerts, silver alerts); local emergencies and transportation incidents that may impact many people... pretty much the type of incidents one might find on a local newscast including abnormal weather events, such as tornados.



Please avoid transmitting small incidents (non-life-threatening shootings, fires that are quickly extinguished and accidents that have little impact on commuters or are not critical) unless there are larger implications to the area as a whole. The coverage area is D.C., Maryland and Virginia.

Beyond broadcasting the initial incident if somebody has a question or needs the original broadcaster to elaborate on the incident this is okay as long as messages are kept brief and related to working incidents.

The Zello app can be downloaded from zello.com for the commonly used operating systems. You will need to register an account with a valid e-mail address. It is also helpful if you designate a profile picture. The service is free to download but keep in mind that it will use WiFi or mobile data - so plan accordingly if you elect to leave it running at all times. Be sure to change the settings of your app to your desired state once you download it. You can set everything from volume to PTT functionality all the way down to how the app should behave on a phone reboot.

Of course we'd like to remind users not to transmit sensitive information such as tactical positions in the event of a barricade, active shooter or similar situation, or people's names or specific residential addresses. Best to keep the details and addresses more general.

The moderators are Kenny Lorber and Alan Henney and either can provide assistance with the app if needed.

UPDATED MILITARY AVIATION FREQS AND CALL SIGNS FROM RON PERRON

We are fortunate to have Ron Perron's expertise as he shares his latest, thoughtfully researched, military aircraft frequency and call sign lists for the region, both of which are posted on the CHM website:

http://henney.com/chm/callsign.htm

http://henney.com/chm/MilAirFreqs.htm

IMPLEMENTATION OF MD'S P25 FiRST NETWORK REACHES HALFWAY POINT

This report summarizes material taken from the Maryland FiRST website, DHS SAFECOM website and related sources.

Maryland is catching up with Virginia in its quest for a statewide Project 25 radio network. The construction and roll-out of a statewide P25 700 MHz radio system for all levels of government and all state agencies is being constructed in five phases. When completed, the radio network, known as FiRST (First Responders Interoperable Radio System Team), will allow officials in every region of Maryland to communicate with each other using a single radio.

FiRST was used extensively during the April, 2015 riots in Baltimore and provided capabilities not previously available to state law enforcement. Using FiRST-capable 700/800 MHz radios, officials could coordinate with Baltimore City (using the city's P25 system) and with state agencies such as Maryland Emergency Management Agency (MEMA)'s Joint Operations Center ("M-JOC") and Maryland Institute for EMS Systems (MIEMSS)'s SysCom center.

Officials say the scope of the civil unrest, which spread across Baltimore and into Baltimore County, necessitated coverage greater than what is provided typically by a single-site 800 MHz national mutual aid repeater site [8CALL90 (851.0125), 8TAC91 (851.5125), 8TAC92 (852.0125), 8TAC93 (852.5125) and 8TAC94 (853.0125)]. Those channels have been set aside for interoperability, but if used with a repeater, they are limited to a specific site.

A special zone in all FiRST radios, known as the "MD CALL" zone (see page 3, column 2), was programmed into out-of-state law enforcement radios so police could interoperate with state and allied agencies using the FiRST radio network during the Baltimore riots.

Brief History of FiRST

The Maryland Transportation Authority (MdTA) and the JFK Highway barrack of the Maryland State Police (MSP) went live on FiRST in 2012 in an area that became known as Region 1-A. This is the MdTA service area (toll facilities) and covers a portion of Central Maryland that is home to about a third of the state's population and much of its critical infrastructure.

Also in 2012, Kent County became the first Eastern Shore jurisdiction to join FiRST. The Eastern Shore was designated as FiRST Phase 2. In December 2013, FiRST expanded to cover the entire Eastern Shore.

In the near future, Talbot, Caroline and Queen Anne's counties intend to switch to FiRST as their primary means for public safety communication. Other localities are also considering joining FiRST as their radio systems reach the end of their service life.

Both Region 1A and Phase 2 have already been operationally accepted.

Phase 3

Construction of Phase 3 (Central Maryland) is in progress. This includes Anne Arundel, Baltimore, Carroll, Cecil, Frederick, Harford and Howard counties along with the City of Baltimore. Several sites have already been completed while others are targeted for completion before June of this year.

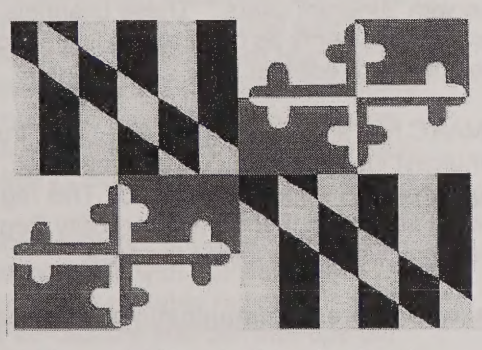
At the conclusion of Phase 3, more than 77 FiRST sites will be on the air and 83 percent of the state's population will be covered by the network. As of September 2015, more than 20,200 radios have been activated on FiRST. Around 4,000 radios belong to federal agencies currently on the system or planning to use FiRST for interoperability.

Also part of Phase 3 was an Inter-RF Sub-system Interface ("ISSI") pilot project between FiRST and Prince George's County's P25 networks. Such an interface allows users to roam between the networks but has several drawbacks. There are no P25 standards for the transfer of data through the ISSI, so important features may be inaccessible by the host system. Prince William and Fairfax counties have been testing a similar interface as well.

Phase 3 includes the installation of additional 700 MHz air-ground repeater stations in Salisbury and at Lamb's Knoll that will allow access to medevac helicopters (see page 4, column 1).

Opportunities were also expanded in Phase 3 for interoperability with Maryland localities, federal agencies such as the ATF Baltimore Division, and adjoining states. FiRST has complete interoperability with Delaware State Police's old Motorola ASTRO system. Planning with other states is in progress.

Other agencies brought online during Phase 3 include Towson University, Department of Human Resources, Department of Health and Mental Hygiene and the Comptroller of Maryland.



Phase 4

During 2017, sites in Phase 4 (Western Maryland) will be activated and connected to the network. Phase 4 is expected to be the most challenging part of the project from a RF-deployment perspective with 22 new 700 MHz RF sites, bringing Maryland FiRST to more than 100 total RF sites covering about 90 percent of the state's population. An additional 700 MHz air-ground station will be installed at Dan's Rock.

An extensively redesigned fiber and microwave backbone will be engineered and installed to expand the state's network in Allegany and Garrett counties, both of which are considering FiRST as their primary means of radio communication. Washington County plans interoperability solutions with FiRST that will be jointly developed with the state.

Phase 5

This past September, "notice to proceed" to Phase 5 was approved by the state's Board of Public Works which is responsible for the expenditure of all capital appropriations. Phase 5 is the final phase of FiRST which will include Southern Maryland followed by Montgomery and Prince George's counties. Simulcast 700 MHz cell sites are planned for the Phase 5 counties -- Calvert, Charles, Saint Mary's, Montgomery and Prince George's.

Phase 5 also includes enhancements to improve existing coverage in Dorchester and Montgomery counties to strengthen adjoining cell coverage. The capacity of the Howard, Montgomery and Prince George's counties cells will be increased to 14 simultaneous talk-paths.

Also part of Phase 5 is coordination with WMATA (Metro) on both RF coverage and co-location of equipment. The state also intends to work with the counties to identify infrastructure sharing opportunities to minimize implementation costs.

Finally, additional air-ground stations are planned in Prince George's and Saint Mary's counties.

The "MD CALL" Zone

One of the primary missions of FiRST is large-scale interoperability. That includes the statewide network, compatible radios and common talkgroups. The "MD Call" zone features a common set of talkgroups intended for use by all FiRST users. Eventually, all law enforcement radios in the state capable of the 700 MHz band and those used by out-of-state first responders could include this zone. The zone features 16 unique talkgroups (*MD CALL* and MD TACs 1 through 15) intended for interagency communication that supports regional and, if necessary, statewide communication.

The talkgroups are assigned and coordinated by MEMA. The "MD CALL" talkgroup is used for hailing and coordination, while MD TAC 1 through MD TAC 15 are assigned by MEMA as required. Protocols for use of this zone have been created as a result of the Baltimore riots. Certain talkgroups are "strapped," meaning they are set for encrypted use only, using a nationwide interoperability encryption key.

National 700 MHz Interoperability Channels

To supplement the Maryland FiRST network, a few 700 MHz nationwide interoperability repeater sites are being planned. Use of these channels will be coordinated centrally on a statewide basis from the M-JOC. Officials

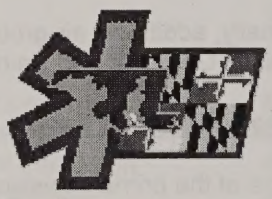
have designated 32 700 MHz channels for nationwide interoperability (page 30 of the National Interoperability Field Operations Guide has the frequencies). Several of these channels will be available throughout the state at various repeater sites.

National 800 MHz Mutual Aid Channels

Currently part of Maryland's interoperability efforts are the five 800 MHz nationwide mutual aid channels that have been implemented throughout the state. These channels are 8CALL90 (851.0125), the hailing frequency, and its four tactical channels [8TAC91 (851.5125), 8TAC92 (852.0125), 8TAC93 (852.5125) and 8TAC94 (853.0125)].

700 MHz Air-Ground Communication

Air-to-ground communication is vital to first responders, yet previous FCC rules failed to reserve public safety radio frequencies for such air-ground communication. According to FCC rules, aircraft cannot cause interference and if the aircraft radio experiences interference, there is no requirement for the cause of the interference to be corrected.



To strengthen air-ground communications, Maryland initiated an effort to revise FCC rules to adopt specific 700 MHz frequencies for primary air-ground operations to eliminate the potential for interference. In October 2014, the FCC issued this report and order assigning the use of eight 700 MHz frequencies (769.13125, 769.63125, 770.13125, 770.63125, 773.11875, 773.61875, 774.11875 and 774.61875) for exclusive air-ground communication.

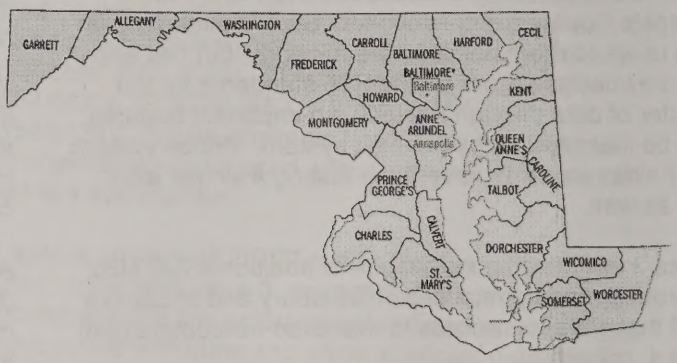
In Maryland, 769.63125 will become the aviation command and control channel (replacing 44.74), 770.13125 will be used for medical consultations (replacing 47.66) and 774.61875 has been designated for landing zone coordination.

Maryland initiated a program to implement the 700 MHz air-ground channels throughout the state for use by MSP aviation and for the command and control of the aircraft as well as to provide communication with medical facilities.

Air-ground sites have been installed in Baltimore and Salisbury and are controlled by MIEMSS's SysCom center in Baltimore. An additional station in Washington County is pending. Future stations are planned for Allegany, Prince George's and Saint Mary's counties. In addition to providing support for Maryland's aircraft, radios installed in aircraft from other states will be requested to coordinate all activities while in Maryland through SysCom.

MARYLAND REGIONAL INTEROPERABILITY GROUPS

All Maryland counties and the City of Baltimore have formed regional public safety communication groups to foster interoperability with neighboring jurisdictions.



Central Md Area Radio Comms Network (CMARC)

The CMARC jurisdictions are Anne Arundel, Baltimore (City and County), Carroll, Frederick, Harford and Howard. In Central Maryland, infrastructure was established to make use of the 800 MHz national calling (8CALL90) and tactical channels (8TAC91 to 94) in support of mutual aid and to meet FCC requirements for communication with "itinerant users." These channels are best for localized incidents as coverage is limited to the range of the activated repeater site.

CMARC has also established a regional trunked/simulcast interoperable 700 MHz network. See the Radio Reference website for details. This region is also known as the Northern Interoperability Region, without Frederick which has joined the NCR.

Eastern Shore Communications Alliance (ESCA)

The ESCA jurisdictions are Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, Worcester counties and Ocean City. The ESCA functions as an interoperability coordinating entity for Maryland's Eastern Shore.

The Maryland Eastern Shore Interoperability Network (MESIN) is managed by Worcester County. The system consists of a Harris IP-based interoperability gateway and Harris Mastr III base stations. The system connects VHF (Accomack fire/rescue) and UHF (Accomack sheriff) channels through the Worcester trunked system.

The use of all national interoperability channels on the Eastern Shore is coordinated by the M-JOC on behalf of

ESCA. That network provides for system-wide voting of calling channels from the M-JOC with all RF channels accessible from all Eastern Shore 9-1-1 centers including Ocean City.

Metropolitan Washington Council of Govt (MWCOG)

The National Capital Region (NCR) counties in Maryland are Montgomery and Prince George's. Charles and Frederick counties participate as necessary.

MWCOG coordinates the use of the fire (154.28/154.295) and police (851.3625) mutual aid channels. The PMARS repeater is located at Merrifield, Va. and maintained by Wireless Communications, Inc. of Arlington.

Also available throughout the Washington, D.C. area and Southern Maryland are six Regional Interservice (RINS) channels to facilitate interoperability among all levels of government (not just first responders). The channels (853.5125, 851.8375, 852.2375, 852.4875, 851.8625 and 852.7625) may also be used (digital or analog) for intra-agency simplex/talkaround purposes as long as they do not transmit a CTCSS of 156.7 Hz, which is the common tone.

Southern Maryland

Calvert, Charles and Saint Mary's counties are considered the Southern Maryland area for public safety interoperability purposes, part of the Southern Maryland Interoperable Executive Committee (SMIEC). Interoperability among these counties has been a challenge as Calvert and Charles have used Motorola ASTRO technology while Saint Mary's had an EDACS network.

Saint Mary's has since acquired a modern P25 radio system which is interoperable with Maryland FiRST. Charles County mobile and portable radios, but not the infrastructure, are P25 capable and can interoperate with Maryland FiRST, Calvert and Saint Mary's.

Both Charles and Calvert counties are working on upgrading to P25 systems. All five of the national 800 MHz mutual aid channels are common to all three jurisdictions. They can be used when interoperability is required until all three counties have P25 networks.

Washington-Allegany-Garrett Interop Net (WAGIN)

WAGIN is the interagency group that covers the Maryland panhandle counties of Allegany, Garrett and Washington. Garrett's first responders have a conventional VHF high-band radio network while those in Allegany use a UHF LTR Passport network and those in Washington are also UHF but with P25 technology! As a result, a Cisco IP Interoperability and Collaboration System (IPICS) and Motorola Motobridge Interoperable IP solution are used to interconnect Maryland's westernmost counties.

WAGIN RF sites include national interoperability conventional channels for VHF, UHF and 800 MHz. Each site has an analog "call" channel along with one "tac" channel for each band. VHF low-band channels are included at each site for coordination with MSP (Tac 3, 39.26) and SHA (Ch.6, 47.26).

Each of the counties' 9-1-1 centers is equipped with a PC-based console that connects to the dedicated server in Allegany County. Each console has access to all of the radio channels on the system along with several VoIP circuits to allow communication with other county and some state communication centers (MEMA's M-JOC, SHA's SOC and DNR at Sandy Point). The sites and communication centers are connected via the state's Public Safety Interoperability Network (PSINet).

When first responders from outside a county's system come to assist their neighbor, they make contact using the "call" channel in the band in which they operate. This includes VCALL10 (155.7525), UCALL40 (453.2125) or 8CALL90 (851.0125). Once recognized by a WAGIN 9-1-1 center, they are assigned a "tac" channel such as VTAC11 (151.1375), UTAC43 (453.8625) or 8TAC92 (852.0125). If needed, they can be patched to an operations channel or talkgroup.

FiRST Interoperability with Adjacent States

Maryland FiRST is developing interoperability programs with adjoining states. This is particularly challenging as Pennsylvania, Virginia and West Virginia operate systems in other frequency bands.

FiRST Interoperability with Delaware

Delaware uses a statewide Motorola Smartzone system with a core switch that has been recently upgraded to ASTRO25 technology, similar to what is used by Maryland FiRST. MSP APX radios are Smartzone capable and are programmed with selected DSP talkgroups. Delaware fire and EMS radios along the Maryland border are also programmed to operate on the Maryland FiRST and/or other Maryland Smartzone systems.

Delaware's use of older Smartzone-only radios limits interoperability with Maryland FiRST. System-to-system linkages between Maryland FiRST and Delaware are either installed or planned. As Delaware acquires more P25 radios, interoperability with Maryland FiRST will become more common.

FiRST Interoperability with the District of Columbia

The District of Columbia's Motorola ASTRO25 700/800 MHz system is interoperable with Maryland FiRST technology. The District encrypts primary police dispatch and tactical talkgroups and several fire/EMS groups using regionally shared encryption keys.

Interoperability talkgroups in the D.C. "RIZ" zone are not encrypted and are programmed into suburban P25 radios. MPD's Citywide-1 has been programmed into each MSP radio. Additionally, all MPD and D.C. fire/EMS radios include the RINS and national 700/800 MHz interoperability channels.

Interoperability with Pennsylvania State Police

The Commonwealth of Pennsylvania is planning a replacement radio system for state troopers who currently use a nonstandard OpenSky network that is not compatible with P25 networks such as FiRST. Pennsylvania is planning to migrate from OpenSky to P25 networks in both VHF and 800 MHz bands in conjunction with evolving local government systems.

MSP's Electronic Services Division has been working with PSP personnel to better address interoperability. The typical means of interoperability between PSP and MSP is the use of VLAW31 (155.475). VLAW31 was the first frequency reserved for nationwide law enforcement interoperability by the FCC. MSP has a VLAW31 base station in every state police barrack.

FiRST Interoperability with Virginia State Police

VSP manages the state's P25 STARS network. More than 20 state agencies now use STARS, but VSP is the primary user. The STARS system was designed around VHF P25 mobile radios and 700 MHz mobile repeaters.

Because Maryland and Virginia operate in different frequency bands, interoperability is facilitated through dispatch consoles. Maryland has acquired and will continue to acquire and license VHF control stations installed at Maryland FiRST sites near Virginia on 151.1375, 154.4525, 155.7525, 158.7375 and 159.4725 (WQRV585). Eventually, various MSP barracks will have interoperability with VSP radio dispatchers in the 1st (Richmond), 5th (Chesapeake) and 7th (Fairfax) divisions.

Virginia troopers also have 700 MHz portable P25 radios capable of operation on Maryland FiRST as well as the nationwide interoperability channels. Both states promise to continue to discuss the appropriate strategies for linking communication between troopers operating in border areas.

FiRST Interoperability with W. Virginia State Police

The WVSP operate in the UHF band. While P25 technology is used, dual-band UHF/700-800 MHz radios would be required to facilitate direct communication between the two agencies. As part of Maryland FiRST Phase 4, it is contemplated that a UHF interoperability station will be installed at Dan's Mountain to provide a direct link to the Romney WVSP barrack.

Also being considered is the use of a low-band nationwide interoperability frequency as both state police forces continue to maintain VHF low-band radios in vehicles. Maryland has licensed 39.46, the nationwide low-band interoperability channel, on a statewide basis.

FiRST Interoperability with WMATA/Metro

WMATA's current radio network operates on the UHF-TV band. Pursuant to Congressional action, WMATA must start vacating those frequencies by 2021. WMATA is evaluating proposals to build a P25 network. The local frequency coordination group for Region 20 has identified 16 700 MHz frequency pairs for WMATA that can be used within a 30-mile radius of downtown D.C. The proposed system will support 30 simultaneous talkpaths using TDMA technology.

WMATA has proposed that this network could also be used for region-wide communication by other jurisdictions in the region. Once constructed, the WMATA system promises to facilitate interoperability throughout the metropolitan area.

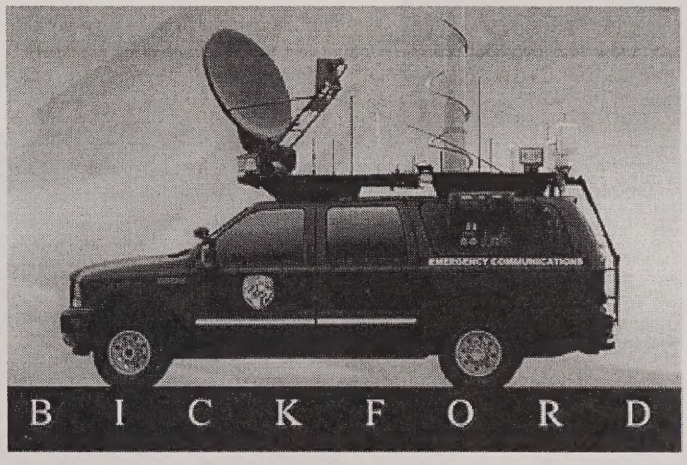
Proposals were due last November, but the contract for WMATA's radio network is scheduled to be awarded by September 2016. The project, with an estimated price tag of more than $100 million, is expected to be funded by Federal capital grants from the Federal Transit Administration as well as capital contributions from area jurisdictions.

Other Related Mutual Aid Radio Nets

Low-Power 700 MHz Channels

The FCC created 12 low-power 700 MHz frequency pairs for use by first responders. Nine of these frequency pairs, which are standardized throughout the nation, are under the control of the regional frequency planning committees and three (marked with a "*") are designated for nationwide itinerant use. Maryland has licensed the use of these frequencies on behalf of all state and local first responders. These frequencies are unique in that they are limited to two watts, can be either digital or analog and may be used in simplex or duplex.

769.00625, 769.01875, 769.03125, 769.04375, 769.05625*, 769.06875*, 774.93125, 774.94375, 774.95625, 774.96875, 774.98125, 774.99375*



Deployable 700 MHz Interoperable Trunking

In October 2014, the FCC issued new guidelines for the use of 24 700 MHz frequency pairs that had been held in reserve since the original band plan was adopted. Six frequency pairs were adopted for nationwide deployable trunked radio systems. As trunked radio systems designed for deployable infrastructure on a nationwide basis, it is important that radios be uniformly programmed to allow for proper nationwide operation. The National Public Safety Telecommunications Council (NPSTC) has been developing the operating guidelines for these channels. Eventually they may be programmed into FiRST radios.

This spreadsheet from the Association of Public-Safety Communications Officials (APCO) website includes a helpful list of all 700 MHz channels and associated usages.

The Capitol Hill Monitor
c/o Alan Henney
6912 Prince George's Avenue
Takoma Park, MD 20912-5414

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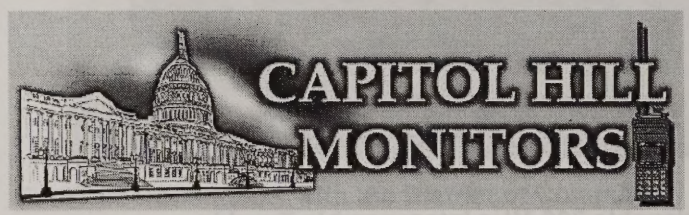
CHM GET-TOGETHER SCHEDULED SUNDAY, Jan. 31, 2016, IN COLLEGE PARK. SEE page 1.



Please address all correspondence to Alan. We encourage readers to submit material and write articles that relate to the hobby. All submissions are subject to editing for style and content. When submitting material please make certain we can contact you should we have any questions. We welcome frequency and visitor requests, but please include a reply envelope.

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